Supporting Information

Tunable Floating-Base Bipolar Transistor Based on 2D Material Homojunction Realized by Solid Ionic Dielectric Material

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Fig. S1 The measure of capacitance-voltage results of 285 nm LiTaO$_3$ film and SiO$_2$ film at 1 KHz.
Fig. S2 (a) Optical microscopy image of buried gating electrode and the smoothness of the gating. (b) The roughness of LiTaO₃ film which covered the buried gating by magnet sputtering.

The optical microscopy image of buried gating electrode was shown in Fig. S2a. The height difference between the buried gate electrode and other positions is less than 10 nm. As shown by Fig. S2b, the roughness of sputtered LiTaO₃ film is less than 10 nm, indicating the high quality fabrication technology.